1385919

ANNUAL INVESTIGATIVE PROGRAM - 1924

(1923-1924)

(Status Sheets)

NORTHEASTERN FOREST EXPERIMENT STATION
Amherst, Massachusetts

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FORESTATION

Project	Source of seed, - Scotch pine. (Fs-d-500)
Scope	To determine the relative desirability of stock raised from Scotch pine seed from different sources for planting in the Northeast.
Status	Not yet started
Plans	Sample plots to be established in 1924 with stock raised from Austrian and Baltic seed. Additional nursery sowings to be made with Austrian and Baltic and perhaps Scotch seed.
Assignment	M. Westveld, Northeastern Forest Experiment Station, in cooperation with Massachusetts Conservation Commission, Massachusetts Agricultural College, and New York State College of Forestry.

PROTECTION

Project Control of miscellaneous forest insects. (Pi-3)

Scope Includes studies of life history, damage, and control of various forest insects not covered by major projects.

Status Information on forest insects of economic importance is secured so far as possible in connection with the spruce budworm study. Notes on many of these are included in Bulletin No. 1 of the Maine Forest Service.

Plans Additional information will be collected as opportunity offers with special reference to the forest tent caterpillar, wood borers, bark beetles, larch sawfly, spruce and fir insects other than the budworm, pales weevil, white grubs, and mound-building ants. Special projects for these various insects will be set up as rapidly as the time which can be devoted to them warrants.

Assignment H. B. Peirson, Northeastern Forest Experiment Station, in cooperation with the Bureau of Entomology, Maine Forest Service, and private timberland owners.

PROTECTION

Project Control of spruce budworm. (Pi-2)

Scope To determine the life history, spread, and control of the spruce budworm, and its effect on tree growth.

Status Work was started by the Maine Forest Service in the fall of 1921. Much information has been secured on the life history of the budworm, distribution, damage caused, time of attack, date of death, retardation of growth, and relation between mortality and forest type. Considerable progress has been made in the preparation of a type map for the northern part of the State. Bulletin No. 1 of the Maine Forest Service summarizes in popular form the chief facts about the budworm and suggests possible control measures.

Plans To be continued, with special reference to spread, retardation of growth, effect of girdling at different seasons as a possible control measure, and relation between mortality, forest type, and rate of growth. Work to be concentrated as far as possible at a sub-station near Cupsuptic, Maine.

Assignment H. B. Peirson, Northeastern Forest Experiment Station, in cooperation with Bureau of Entomology, Maine Forest Service, and private timberland owners.

PROTECTION

Project	Analysis of forest fire statistics. (Pf-1)
Scope	To secure from an intensive analysis of available records as complete and accurate information as possible in regard to forest fire hazard, risk, and damage to different parts of the Northeast. Special attention will be paid to the relation between number and size of fires, damage, and cost, and such factors as cause, location, date, elapsed time, weather conditions, forest type, method of cutting, and slash disposal, etc.
Status	Tentative arrangements have been made with State Foresters for the use of available forest fire records.
Plans	Active work to be undertaken during 1924 in cooperation with the State foresters.
Assignment	S. T. Dana, Northeastern Forest Experiment Station.

PROTECTION

Project	Prediction of fire conditions. (Pf-2)
Scope	To work out methods for predicting periods of unusual fire hazard on basis of probable weather conditions and inflammability of fuels.
Status	Not yet started.
Plans	Work to be undertaken on a small scale and in a preliminary way in 1924 in cooperation with Weather Bureau and State Foresters.
Assignment	S. T. Dana, Northeastern Forest Experiment Station.

PROTECTION

Project	Control of gypsy moth by forest management. (Pi-1)
Scope	To develop practical and effective measures for the control of the gypsy moth by forest management.
Status	Occasional records of defoliation and infestation are made by the Bureau of Entomology on the 46 permanent sample plots established in connection with this project. Aside from these records, comparatively little work has been done since the publication in 1917 of Department of Agriculture Bulletin 484, "Control of the Gypsy Moth by Forest Management."
Plans	An examination of the plots will be made in the spring of 1924, and a decision reached at that time as to whether, and in what way to continue the work.
Assignment	Northeastern Forest Experiment Station, cooperation with Bureau of Entomology.

MENSURATION

Project Growth and yield of spruce and fir in the Northeast. (ME-150)

Scope To determine the growth and yield of spruce in different types and in even-aged and uneven-aged stands.

Status Work started in September, 1923. All diameters, 5-10% of the heights, and increment borings on 10% of the trees taken on 64 temporary sample plots in normal stands of even-aged second growth in Maine, chiefly in spruce flat, spruce slope, and old field types. Some 150 additional plots located but not measured. Considerable computing done, but no attempt made to prepare yield tables pending the collection of more adequate data.

Plans Field work to be continued in Maine and probably extended to New Hampshire, Vermont, and New York. Several permanent sample plots to be established. Emphasis to be laid at present on the construction and application of normal yield tables.

Assignment Meyer, W. H., Northeastern Forest Experiment Station.

MENSURATION

Project	Development of universal taper and volume tables. (ME-1)
Scope	To determine the conformity of various species to a form equation which can be used for the construction of standard taper curves, and the application of such curves in mensuration work.
Status	Work started at University of Idaho and continued at Northeastern Forest Experiment Station with various western, eastern, and European species.
Plans	Work to be continued, chiefly with eastern conifers, including field observations, measurements, and practical application. Manuscript for western species to be completed for publication by University of Idaho.
Assignment	C. Edward Behre, Northeastern Forest Experiment Station

MANAGEMENT

Project — Practice of forestry by private owners. (M-1)

Scope — To secure information as to the extent to which forestry is being practiced by private owners, the general character of the work being done, and the results secured.

Status — Some interesting but very incomplete material has been secured in connection with the timber crop report and in other ways.

Plans — An attempt will be made in 1924 to extend and systematize the securing of information so as to cover the field thoroughly with as little interference as possible with the other work of the station. Special attention will be paid in 1924 to the compilation of plantation records.

Assignment — Staff, Northeastern Forest Experiment Station, in cooperation with State Foresters and other agencies.

MANAGEMENT

Project Management of sprout hardwood stands. (M-2)

Scope To determine the best methods for the cutting, reproduction, and subsequent handling of sprout hardwood stands in southern New England.

Status Not yet started

Plans Attention to be concentrated in 1924 on (1) the reproduction following clear cutting for fuel, and (2) the best treatment of coppice after destruction by fire, - (a) leave it alone; (b) cut out dead material only; or (c) cut out dead material and new sprouts. Sample plots to be established. Data also to be collected so far as possible on fire damage, and if time permits on the best disposal of sprout hardwood brush.

Appointment W. H. Meyer, Northeastern Forest Experiment Station, in cooperation with Massachusetts Agriculture College, and T. S. Woolsey, Jr.

MANAGEMENT

Project Replacement of chestnut. (M-3)

Scope To determine what is taking place on blight-killed areas and what species should be favored as substitutes for chestnut from the standpoint both of silviculture and utilization.

Status Not yet started.

Plans Limited cooperation with Appalachian Forest Experiment Station, and possibly local agencies, in the establishment of temporary (and perhaps some permanent) sample plots to study chestnut replacement under natural conditions in southern New England. Possibly cooperation with Massachusetts Agricultural College in the preparation of a popular bulletin on fence posts, with special reference to preservative treatment.

Assignment Northeastern Forest Experiment Station, in cooperation with Appalachian Forest Experiment Station, and possibly other agencies.

MANAGEMENT

Project Management of eastern hemlock. (M-156)

Scope To determine the best methods for the cutting, reproduction, and subsequent handling of hemlock in both pure and mixed stands.

Status Not yet started

Plans Work to be limited in 1924 to the establishment of permanent sample plots on the Massachusetts Agricultural College forest at Mount Toby, near Amherst, for the study of the growth and reproduction of hemlock in pure stands and in mixture with other species.

Assignment C. Edward Behre, Northeastern Forest Experiment Station, in cooperation with Massachusetts Agricultural College.

MANAGEMENT

Project	Methods of cutting in pure and mixed spruce and fir stands. (Mc-1)
Scope	To determine the best methods of cutting to use to secure satisfactory natural reproduction in the shortest possible time, and to determine the rate of g growth of seedlings, and larger trees left after cutting.
Status	Work started in October, 1925. Studies of reproduction before and after cutting, of the growth of seedlings and larger trees left after cutting, and of the amount and influence of slash, made on 58 temporary sample plots on cut-over spruce and fir lands near Moosehead Lake, Maine. Office computing completed for data so far collected.
Plans	Field work to be continued in Maine and probably extended to other states in the northern part of the region. Several permanent sample plots to be established. Special attention to be paid to relatively pure, even-aged spruce stands.
Assignment	M. Westveld, Northeastern Forest Experiment Station.

FOREST TYPES

Project	Relation of soil moisture to tree growth. (T-1)
Scope	To determine the role played by soil moisture in the establishment and subsequent development of different species on different sites.
Status	Not yet started
Plans	Attention will be concentrated in 1924 on the development of methods and equipment for the measurement of soil moisture, and on the influence of some of the more important factors on soil moisture. Work will be closely correlated with that on the spruce methods of cutting study.
Assignment	P. R. Gast, Northeastern Forest Experiment Station, in cooperation with Harvard University.